ENERGY STAR® Program Requirements for Digital-to-Analog Converter Boxes (DTAs)

Partner Commitments
DRAFT 1

Commitment

The following are the terms of the ENERGY STAR Partnership Agreement as it pertains to the manufacturing of ENERGY STAR qualified DTAs. The ENERGY STAR Partner must adhere to the following program requirements:

- comply with current ENERGY STAR Eligibility Criteria, defining the performance criteria that must be met for use of the ENERGY STAR certification mark on DTAs and specifying the testing criteria for DTAs. EPA may, at its discretion, conduct tests on products that are referred to as ENERGY STAR qualified. These products may be obtained on the open market, or voluntarily supplied by Partner at EPA's request;

- comply with current ENERGY STAR Identity Guidelines, describing how the ENERGY STAR marks and name may be used. Partner is responsible for adhering to these guidelines and for ensuring that its authorized representatives, such as advertising agencies, dealers, and distributors, are also in compliance;

- qualify at least one ENERGY STAR DTA model within one year of activating the DTA portion of the agreement. When Partner qualifies the product, it must meet the specification (e.g., Tier 1 or 2) in effect at that time;

- provide clear and consistent labeling of ENERGY STAR qualified DTAs. The ENERGY STAR mark must be clearly displayed on the top/front of the product, in product literature (i.e., user manuals, spec sheets, etc.), on product packaging, and on the manufacturer's Internet site where information about ENERGY STAR qualified models is displayed;

- provide to EPA, on an annual basis, an updated list of ENERGY STAR qualifying DTA models. Once the Partner submits its first list of ENERGY STAR qualified DTA models, the Partner will be listed as an ENERGY STAR Partner. Partner must provide annual updates in order to remain on the list of participating product manufacturers;

- provide to EPA, on an annual basis, unit shipment data or other market indicators to assist in determining the market penetration of ENERGY STAR. Specifically, Partner must submit the total number of ENERGY STAR qualified DTAs shipped (in units by model) or an equivalent measurement as agreed to in advance by EPA and Partner. Partner is also encouraged to provide ENERGY STAR qualified unit shipment data segmented by meaningful product characteristics (e.g., capacity, size, speed, or other as relevant), total unit shipments for each model in its product line, and percent of total unit shipments that qualify as ENERGY STAR. The data for each calendar year should be submitted to EPA, preferably in electronic format, no later than the following March and may be provided directly from the Partner or through a third party. The data will be used by EPA only for program evaluation purposes and will be closely controlled. Any information used will be masked by EPA so as to protect the confidentiality of the Partner;

- notify EPA of a change in the designated responsible party or contacts for dehumidifiers within 30 days.

Performance for Special Distinction

In order to receive additional recognition and/or support from EPA for its efforts within the Partnership, the ENERGY STAR Partner may consider the following voluntary measures and should keep EPA informed on the progress of these efforts:

- consider energy efficiency improvements in company facilities and pursue the ENERGY STAR mark for buildings;
- purchase ENERGY STAR qualified products. Revise the company purchasing or procurement specifications to include ENERGY STAR. Provide procurement officials' contact information to EPA for periodic updates and coordination. Circulate general ENERGY STAR qualified product information to employees for use when purchasing products for their homes;
- ensure the power management feature is enabled on all ENERGY STAR qualified monitors in use in company facilities, particularly upon installation and after service is performed;
- provide general information about the ENERGY STAR program to employees whose jobs are relevant to the development, marketing, sales, and service of current ENERGY STAR qualified product models;
- feature the ENERGY STAR mark(s) on Partner Web site and in other promotional materials. If information concerning ENERGY STAR is provided on the Partner Web site as specified by the ENERGY STAR Web Linking Policy (this document can be found in the Partner Resources section on the ENERGY STAR Web site at www.energystar.gov), EPA may provide links where appropriate to the Partner Web site;
- provide a simple plan to EPA outlining specific measures Partner plans to undertake beyond the program requirements listed above. By doing so, EPA may be able to coordinate, communicate, and/or promote Partner's activities, provide an EPA representative, or include news about the event in the ENERGY STAR newsletter, on the ENERGY STAR Web pages, etc. The plan may be as simple as providing a list of planned activities or planned milestones that Partner would like EPA to be aware of. For example, activities may include: (1) increase the availability of ENERGY STAR qualified products by converting the entire product line within two years to meet ENERGY STAR guidelines; (2) demonstrate the economic and environmental benefits of energy efficiency through special in-store displays twice a year; (3) provide information to users (via the Web site and user's manual) about energy-saving features and operating characteristics of ENERGY STAR qualified products, and (4) build awareness of the ENERGY STAR Partnership and brand identity by collaborating with EPA on one print advertorial and one live press event;
- provide quarterly, written updates to EPA as to the efforts undertaken by Partner to increase availability of ENERGY STAR qualified products, and to promote awareness of ENERGY STAR and its message.

ENERGY STAR® Program Requirements for Digital-to-Analog Converter Boxes (DTAs)

Eligibility Criteria
DRAFT 1

Below is the Version 1.0 product specification for ENERGY STAR qualified DTAs. A product must meet all of the identified criteria if it is to be qualified as ENERGY STAR by its manufacturer.

1) **Definitions**: Below is a brief description of a DTA and other terms as relevant to ENERGY STAR.

   A. Auto-Power Down: Eligible equipment shall provide the capability to automatically switch from the On state to the Sleep state after a period of time without user input. This capability shall be enabled at the factory as the default setting for the device.

   B. DTA: Receives terrestrial, (over the air) digital signals and converts them to an analog output suitable for analog TVs. Does not provide digital signal output. The DTA category does not include converters that work with satellite or cable digital signals, nor does it cover devices with multi-functionality such as a DVD player with digital to analog conversion capability.

> **Note:** The DTA definition provided above currently mirrors the definition proposed by the National Telecommunications and Information Administration (NTIA) in their public rule-making process for developing a coupon program for DTAs. The definition for a DTA eligible to earn the ENERGY STAR mark may be modified upon completion of NTIA's rule-making process, as EPA intends to align its definition for a DTA with that used by NTIA.
>
> If the final definition developed by NTIA requires modifications to the ENERGY STAR DTA specification, EPA will carefully consider the ramifications on DTA power consumption prior to incorporating the changes. EPA will engage stakeholders in such a change.

   C. Off Mode: A state in which there is negligible or no power consumption.

   D. On Mode: A state in which the DTA is actively delivering its principal functions and some or all of its applicable secondary functions.

   E. Sleep Mode: A state in which the device has greater power consumption, capability, and responsiveness than it does in the Off state, and has less (or similar) power consumption, capability and responsiveness than it does in the On state.

> **Note:** Definitions for On, Sleep, and Off Modes are consistent with CEA-2022: *Digital STB Active Power Consumption Measurement*, and CEA-2013-A: *Digital STB Background Power Consumption*, which are the test procedures referenced in Section 4 of this Draft 1 DTA specification. EPA recognizes that other ENERGY STAR electronics specifications reference IEC modal definitions. However, EPA has decided to reference the CEA definitions in this specification for consistency with the test procedures stakeholders will be using to determine whether their DTA models meet ENERGY STAR requirements, knowing that this specification will be primarily used for products focused on the North American market.

2) **Qualifying Products**: In order to qualify as ENERGY STAR, a DTA model must meet the definition in Section 1.B and the specification requirements provided in Section 3, below. As explained in Section 1, this specification does not cover converters that work with satellite or cable digital signals, nor does it cover devices with multiple primary functions, such as a DVD player with DTA conversion capability or a DTA with video recording capabilities.

3) **Energy-Efficiency Specifications for Qualifying Products**: Only those products listed in Section 2 that meet the following criteria may qualify as ENERGY STAR. The effective date for these requirements is provided in Section 6 of this specification.

Table 1: Criteria for ENERGY STAR Qualified DTAs

Mode	Power Consumption under Test Conditions Effective Date: January 31, 2007
On Mode*	≤ 8 watts
Sleep Mode	≤ 1 watt

***** DTA must incorporate an auto-power down feature to automatically switch from the On state to the Sleep state after a period of time without user input. This capability shall be enabled at the factory as the default setting for the device. The default period of inactivity before the equipment automatically switches to the Sleep state shall be four hours or less. Eligible equipment may allow the current program to complete before switching to the Sleep state. The default energy related settings may not be altered during the initial user set-up process and shall persist unless the user chooses at a later date to manually:

a) disable the "automatic switching to Sleep state" capability, or
b) adjust the default time period from 4 hours or less to some other value.

Note: ENERGY STAR strives to help consumers identify the most energy-efficient models across more than 40 different categories of products. To establish which products are the best in class when it comes to energy efficiency, EPA typically develops a dataset reflecting the energy use of models in a product category and establishes requirements such that approximately the top 25% of the aforementioned dataset could qualify as ENERGY STAR. In the case of DTAs, which are not yet available for testing, EPA does not have a dataset on which to base the above proposed levels. However, information from manufacturers and other stakeholders indicates that the above proposed requirements are fair yet challenging, and strike a balance between recognizing top performing DTA models when it comes to energy efficiency while still allowing a reasonable selection of products to qualify as ENERGY STAR. Further, the one-watt Sleep Mode requirement is in line with the Presidential Executive Order for one-watt standby power levels.

4) **Test Criteria**: Manufacturers are required to perform tests and self-certify those product models that meet the ENERGY STAR guidelines. The test results must be reported to EPA using the DTA Qualifying Product Information (QPI) Form. EPA is calling for the use of the below named test procedures. Any power allowances included in the documents containing and pertaining to these test procedures that originate from a source other than EPA are not relevant to the ENERGY STAR program requirements for DTAs and should be ignored.

In performing these tests, partner agrees to measure a model's On Mode power consumption using Section 6 of CEA-2022, *Digital STB Active Power Consumption Measurement* and Sleep Mode power consumption using Annex A of CEA-2013-A, *Digital STB Background Power Consumption*. However, the following clarifications shall be incorporated into the test procedures when testing to determine whether a product meets ENERGY STAR requirements:

A. In place of section 6.4.i) in CEA-2022 and section A.4.i) in CEA-2013-A regarding the amount of allowable variation in the load when measuring On Mode and Sleep Mode, respectively, ENERGY STAR wishes to reference the following language adapted from IEC 62301: *Household Electrical Appliances – Measurement of Standby Power*. The language provides guidance on how to take an integrated, averaged measurement over a period of time in situations when the load being measured may not be entirely stable.

Where the power meter reading is stable and where there is no cyclic or pulsing behavior of the load, the instantaneous power reading for the load can be recorded directly from the power meter.

(For the purposes of this test procedure, a stable load is one that varies by no greater than ± 5% over a five-minute period.) In the case that the load is unstable, report the average power reading over a five-minute period by integrating the energy consumption of the product over this period and dividing by the total time. The meter shall be capable of sampling at a minimum of one-second intervals. If the power in On or Sleep Mode varies periodically (i.e. a regular sequence of power fluctuations that occur over several minutes or hours), the five-minute integration period shall be increased to encompass one or more complete cycles in order to get a representative average value.

B. Manufacturers will be required to test their DTA models in On Mode with three different input signals at the following commonly broadcasted resolutions: 480p60 (4:3), 720p60 (16:9 HD) and 1080i30 (16:9 HD). On Mode power consumption results will be submitted to EPA at all three input signal resolutions, but only the highest value will be displayed on the ENERGY STAR Web site. (Note that the DTA will have to meet ENERGY STAR requirements when tested with all three input signals; however, the highest power consumption value will be the only one shared with consumers.)

C. Section A.6, Responsibilities, in CEA-2013-A should be ignored. The test criteria as laid out in the respective test procedures should be adhered to by partners when testing their DTAs to determine ENERGY STAR qualification.

Note: EPA is currently considering additional language to clarify how DTAs with electronic program guides (EPG) should be measured. EPA is concerned that there could be unintended energy use consequences if DTAs with EPGs have to frequently download program updates in Sleep Mode. Frequent EPG updating could raise overall device energy use in Sleep Mode, and EPA believes that this effect should be accounted for in Sleep Mode measurements. EPA prefers not to define and develop a power allowance for an additional mode during which EPG program updates occur (e.g., Active Standby). Rather, EPA is seeking creative solutions. In this vein, EPA would appreciate clarifying information regarding energy use by DTAs during EPG downloading. Additionally, EPA is seeking input on the following proposed solutions.

The current CEA-2013-A test procedure lists EPG download activity as a non-routine event that does not need to be measured when making Sleep Mode measurements; however, EPA feels that there is a certain threshold above which EPG downloads should be considered routine activity. There are several ways that such a threshold could be specified in the ENERGY STAR DTA eligibility requirements and test method. A frequency or duty cycle of "X EPG updates per day" could be specified, above which EPG downloading would be considered routine for the purposes of a DTA. Similarly, the eligibility requirements could specify a total daily EPG download time limit of X hours; if a box required greater than X hours of EPG downloading per day, EPG downloading would be considered routine activity. Another option might be to extend the time period for Sleep Mode measurements to, for example, three hours to capture any regular EPG download activity that might routinely occur.

EPA's preference would be the final option, where the time period for Sleep Mode measurements would be extended to capture regular EPG download activity, due to its simplicity in terms of implementation. However, EPA would like to solicit stakeholder feedback on this issue prior to making any final decision. If stakeholders do express a preference for extending the time period for Sleep Mode measurements, they are encouraged to also suggest a suitable time period, e.g., three hours.

5) **User Interface**: Although not mandatory, manufacturers are strongly recommended to design products in accordance with the Power Control User Interface Standard — IEEE 1621 (formally known as "Standard for User Interface Elements in Power Control of Electronic Devices Employed in Office/Consumer Environments"). Compliance with IEEE 1621 will make power controls more consistent and intuitive across all electronic devices. For more information on the standard see http://eetd.lbl.gov/Controls/1621/.

6) **Effective Date**: The date that manufacturers may begin to qualify products as ENERGY STAR under this Version 1.0 specification will be defined as the *effective date* of the agreement. The ENERGY STAR specification for DTAs is effective January 31, 2007.

> **Note:** EPA will delay by one month, until January 31, 2007, both the completion of the Version 1.0 ENERGY STAR specification for DTAs and its associated effective date. EPA is making this change to the original timeline for this product to allow stakeholders longer review periods for Draft documents.

7) **Future Specification Revisions**: EPA reserves the right to revise the specification should technological and/or market changes affect its usefulness to consumers or industry or its impact on the environment. In keeping with current policy, revisions to the specification are arrived at through industry discussions. **Please note that ENERGY STAR qualification is not automatically granted for the life of the product model.** To carry the ENERGY STAR mark, a product model must meet the ENERGY STAR specification in effect on the model's date of manufacture.